WHAT IS CLAIMED IS:

1. An integrated circuit comprising an interconnect structure, wherein a process of forming said interconnect structure comprises a method for forming a patterned hard mask layer in an organic polymer film, said method comprising the steps of:

fluorinating a part of the organic polymer film, thereby forming a fluorinated part, said fluorinated part forming a first hard mask layer;

forming a patterned second hard mask layer on said film;

patterning said first hard mask layer using said patterned second hard mask layer as a mask, thereby forming a patterned first hard mask layer;

removing said second hard mask layer; and

etching said organic polymer film using said patterned first hard mask layer as a mask, wherein at least a part of said first hard mask layer is retained as a dielectric layer.

2. The integrated circuit as recited in Claim 1, wherein said organic polymer film comprises an organic polymer having at least one phenyl group.

3. The integrated circuit as recited in Claim 2, wherein said organic polymer film is selected from the group consisting of benzocyclobutarenes, poly arylene ether, aromatic hydrocarbon, and polyimides.

4. The integrated circuit as recited in Claim 1, wherein the fluorinating step is performed in an ambient comprising fluorine without substantially changing the thickness of said organic polymer layer.

5. The integrated circuit as recited in Claim 4, wherein said fluorine is generated from a source selected from the group consisting of NF_3, SF_6, ClF_3, F_2, XeF_2, and C_xF_y, with x and y being positive whole numbers greater than zero.

6. The integrated circuit as recited in Claim 1, wherein said second hard mask layer is selected from the group consisting of oxides, nitrides and oxynitrides.

7. An integrated circuit comprising an interconnect structure, wherein a process of forming said interconnect structure comprises a method for patterning an organic polymer layer, said method comprising the steps of:

defining at least one first region and at least one second region in an organic polymer film formed on a substrate, said first region being uncovered and

said second region being covered with a layer forming a diffusion barrier for fluorine;

exposing said first and said second region to an ambient comprising fluorine resulting in the fluorination of at least a part of said first region, thereby forming a fluorinated part;

removing said layer; and

selectively removing at least a part of said second region by etching, using said first region as a mask, wherein at least a part of said fluorinated part is retained as a dielectric layer.

8. The integrated circuit as recited in Claim 7, wherein said organic polymer film comprises an organic polymer having at least one phenyl group.

9. The integrated circuit as recited in Claim 8, wherein said organic polymer is selected from the group consisting of benzocyclobutarenes, poly arylene ether, aromatic hydrocarbon, and polyimides.

10. The integrated circuit as recited in Claim 7, wherein said layer forming a diffusion barrier for fluorine is selected from the group consisting of resists, oxides, nitrides and oxynitrides.